

**MAASAI MARA UNIVERSITY**

**REGULAR UNIVERSITY EXAMINATIONS**

**2016/2017 ACADEMIC YEAR**

**FOURTH YEAR SECOND SEMESTER**

**SCHOOL OF BUSINESS AND ECONOMICS**

**BACHELOR OF ARTS (ECONOMICS)**

**COURSE CODE: ECO 413**

**COURSE TITLE:** **ECONOMETRICS II**

**DATE: 11TH MAY 2017 TIME: 0830 – 1030 HRS**

**INSTRUCTIONS TO CANDIDATES**

Answer Question **ONE** and any other **THREE** questions

*This paper consists of* ***3*** *printed pages. Please turn over.*

**QUESTION 1**

1. Explain the assumptions of OLS method. **( 5 Marks)**
2. Enumerate the solutions to the problem of Multicollinearity. **( 5 Marks)**
3. Explain the meaning of DUMMY variable and why it is important in regression analysis. **( 5 Marks)**
4. If $y=f(x\_{1}, x\_{2}, x\_{3} $) but someone estimates a simple linear for each independent variable identify the problem and explain the consequence. **( 5 Marks)**
5. Enumerate the characteristics of OLS estimates and explain why only one cannot suffice. **( 5 Marks)**

**QUESTION 2**

The following cross sectional data was presented for regression analysis using OLS method. However the supervisor doubts the authenticity due to suspected econometric problem.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Y** | 11 | 9 | 6 | 13 | 11 | 12 | 13 | 14 | 9 | 6 | 8 | 11 | 10 | 9 | 8 | 12 | 13 | 10 | 10 | 9 | 11 | 12 |
| **X** | 3 | 5 | 4 | 6 | 2 | 9 | 4 | 4 | 5 | 4 | 3 | 5 | 4 | 5 | 2 | 6 | 3 | 5 | 3 | 3 | 6 | 5 |

**Required:**

1. Test for the existence of the possible problem. **(10 Marks)**
2. The consequences of the problem. **(5 Marks)**

**QUESTION 3**

If the dependent variable *Y* is theorized to be influenced by *X* and *Gen*, and that data collected is presented as follows:

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Y*** | 40 | 55 | 40 | 84 | 128 | 124 | 97 | 131 | 77 | 46 |
| ***X*** | 2 | 1 | 7 | 18 | 24 | 27 | 36 | 61 | 84 | 91 |
| ***Gen*** | Female | Male | Female | Male | Male | Female | Female | Male | Male | Female |

**Required:**

1. The linear regression coefficients. **(8 Marks)**
2. Proportion of the dependent variable explained by *X* and *Gen.* **(2 Marks)**
3. Interpretation of the coefficients. **(3 Marks)**
4. The expression of *Y* if the dummy variable is assumed to affect the slope. **(2 Marks)**

**QUESTION 4**

Time Series data is given as follow and ***ɖ* = 0.6**. (Where *d* is Durbin-Watson statistic)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Y*t*** | 6 | 7 | 9 | 14 | 20 | 21 | 26 | 30 | 36 | 38 |
| **X*t*** | 15 | 12 | 11 | 9 | 6 | 4 | 2 | 1 | 3 | 4 |

Required:

1. Confirmation of the presence/absence of autocorrelation. **(5 Marks)**
2. The coefficients of linear regression. **(10 Marks)**

**QUESTION 5**

For a given medical course it is alleged that there is need for one to pass in mathematics and biology in order to be admitted. Data on performance of ten students randomly chosen is given as follows:

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Med** | 70 | 68 | 53 | 60 | 72 | 80 | 70 | 45 | 50 | 61 |
| **MATHS** | 40 | 44 | 45 | 50 | 40 | 80 | 60 | 60 | 50 | 58 |
| **BIOLOGY** | 80 | 72 | 45 | 60 | 79 | 82 | 80 | 47 | 40 | 50 |

Required:

1. Whether or not the two mathematics and/or Biology should still be considered as prerequisites for the medical course. **(15 Marks)**

 **//END**